Comparison of Intelligence Quotient in Early Treated Neonates with Congenital Hypothyroidism Compared to Healthy Children

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Abstract

Background: Congenital hypothyroidism (CH) is one of the preventable causes of intellectual disability. The aim of this study was to compare intelligence quotient (IQ) in early treated children with CH and healthy children.

Materials and Methods: This cohort study was conducted on 78 early treated children with CH (patient group) identified in screening program in Qazvin, Iran, started in 2006 and 90 age and sex matched healthy children (control group). The Persian version of Wechsler scale was performed to assess IQ (full scale, verbal, performance). Full-scale score among 70 and 80 were defined as borderline IQ and score among 50 and 69 were defined as mild mental retardation. Data were analyzed using SPSS software version 16.0.

Results: Mean age was 6.57±1.92 in patients group and 6.94±1.57 in control group (P>0.05). 46/78 of the patient group and 51/90 of the control group were male (P>0.05). Mean full scale (87.01±13.47 vs. 107.45±10.49; P< 0.001), verbal (85.73±13.54 vs. 106.86±10.18; P< 0.001), and performance (89.44±13.66 vs. 110.62±9.82; P< 0.001) IQ in the patients group were significantly lower than the control group. 73.1% of the patients group had average and above IQ. Borderline IQ (14.1% vs. 0) and mild mental retardation (12.8% vs. 1.1%, P<0.001) in the patients group were significantly higher than the control group (P<0.001).

Conclusion: Based on the results, although mean IQ in treated children with congenital hypothyroidism was lower than the control group, 73.1% of them had normal IQ. Early diagnosis and treatment of congenital hypothyroidism with high doses of thyroid hormone as well as patients' compliance can prevent mental retardation.

Key Words: Children, Congenital Hypothyroidism, Intelligence Tests, Thyroid Hormones.